

New England Healthcare Engineers' Society

National Air Quality Regulations: Boilers and Emergency Generators

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Presentation Overview

- Air Emission Basics - Hospitals
- Boiler Regulations
- Emergency Generator Regulations
- Main Take Away Points
- Questions

Air Emission Basics

- Criteria Pollutants

- Products of combustion: Nitrogen Oxides (NO_x), Carbon Monoxide (CO), Sulfur Dioxide (SO₂), Particulate Matter (PM) and Volatile Organic Compounds (VOC) or Non-methane hydrocarbons (NMHC)

- The Clean Air Act (CAA) requires EPA to identify sources of Hazardous Air Pollutants (HAPs) and develop regulations to limit these emissions.

- Boilers, Incinerators and Reciprocating Internal Combustion Engines

- Hazardous Air Pollutants

- List of 188 HAPs from the CAA can be found at <http://www.epa.gov/oar/toxicair/newtoxics.html>

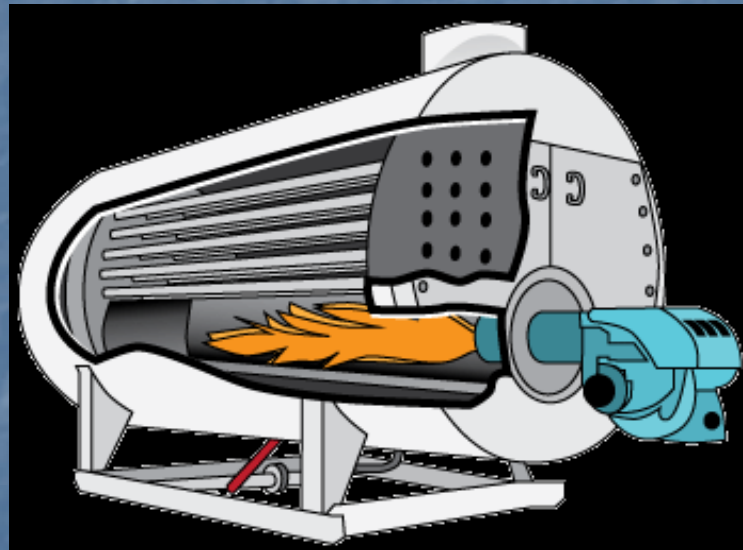
Air Emission Basics (cont'd)

- EPA has developed both Major and Area Source National Emission Standards for Hazardous Air Pollutants (NESHAPs) promulgated under 40 CFR 63
- Major vs. Area Sources
 - Major sources have the Potential to Emit (PTE) greater than **10 tpy** individual HAP and **25 tpy** combined HAPs
 - Area sources are facilities that are not major sources - who do not have PTE above these levels either due to permit limitations or design capacity.
- Majority of Sources in NH are Area Sources

Hospital Specifics

- Hospitals in NH are **area sources** of HAPs based on the boilers and emergency generators currently permitted.
 - To determine your facility's classification, you must calculate your PTE of HAPs from all devices at your facility (boilers, emergency generators, ethylene oxide sterilizers, etc.)
- Hospitals typically burn **traditional fuels** in their boilers (coal, biomass, oil or gas) as opposed to solid waste.
 - Presentation today is not covering HIMWI (none in NH – few, if any, in New England).
- Almost 97% of the hospitals in NH with an air permit burn **fuel oil** alone or in combination with natural gas.
- One facility in NH operates 2 small (<10 MMBtu/hr) biomass boilers.
- Over 70% have at least one boiler **>10 MMBtu/hr.**

Boiler Regulations



Background

- NESHAP for Area Sources: Industrial, Commercial, and Institutional Boilers, 40 CFR 63, Subpart JJJJJJ (6J)
 - Final Rule published March 21, 2011
 - Final Rule amendments published February 1, 2013

- NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63, Subpart DDDDD (5D)
 - Final Rule published March 21, 2011
 - Final Rule amendments published January 31, 2013

Area Source Subcategories

- Oil
- Biomass
- Coal
- Seasonal
- Oil-fired ≤ 5 MMBtu/hr
- Limited-use
- Boilers with oxygen trim systems that maintain optimum air-to-fuel ratio



Are any boilers not subject to Subpart 6J?

- **Hot water heaters** with a capacity of no more than 120 gallons combusting oil, gas or biomass. Gas oil, and biomass **hot water boilers** (e.g., not generating steam) rated at less than 1.6 MMBtu/hr are included in this definition and not covered by the rule.
- **Gas-fired boilers** that burn gaseous fuels not combined with any solid fuels, burns liquid fuel only during periods of gas curtailment, gas supply interruptions, startups, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year.
- **Temporary boilers** used temporarily in place of another boiler while that unit is being replaced or repaired, generally over an operational period of less than 12 months, unless an extension is approved.

Are any boilers not subject to Subpart 6J? (cont'd)

- ***Residential boilers*** intended primarily for heat or power for a residential unit of up to four families, or a single unit residence that has been converted or subdivided into apartments or condos.
- ***Electric boilers***
- Boilers regulated under another Part 63 rule.
- ***Boilers burning waste*** and covered under incinerator rules
- ***Research and development boilers***
- ***Process heaters***
- ***Boilers used as a control device*** to comply with another subpart of part 60, 61, 63, or 65
 - provided that at least 50 percent of the heat input to the boiler is provided by the gas stream that is regulated under another subpart.

Table 1. Summary of Boiler Area Source NESHAP Emission Limit and Work/Management Practice Requirements

Subcategory			Summary of Requirement
Existing large area source boilers ¹	i.e., commenced construction or reconstruction of the boiler on or before June 4, 2010; greater than or equal to 10 MMBtu/hr	Gas (all types)	<ul style="list-style-type: none"> • No requirements (not covered by the rule)
		Coal (excluding limited-use boilers)	<ul style="list-style-type: none"> • Numeric emission limits for mercury (Hg) and carbon monoxide (CO) • One-time energy assessment
		Biomass and Oil	<ul style="list-style-type: none"> • Tune-up every other year or every 5 years • One-time energy assessment • No numeric emission limits
		Limited-use coal	<ul style="list-style-type: none"> • Tune-up every 5 years • No energy assessment • No numeric emission limits
Existing small area source boilers ¹	i.e., commenced construction or reconstruction of the boiler on or before June 4, 2010; less than 10 MMBtu/hr	Gas (all types)	<ul style="list-style-type: none"> • No requirements (not covered by the rule)
		Coal, Biomass and Oil	<ul style="list-style-type: none"> • Tune-up every other year or every 5 years • No numeric emission limits

¹ An existing dual-fuel fired boiler meeting the definition of gas-fired boiler that meets the applicability requirements of subpart JJJJJJ after June 4, 2010 due to a fuel switch from gaseous fuel to solid fossil fuel, biomass, or liquid fuel is considered to be an existing source under this subpart as long as the boiler was designed to accommodate the alternate fuel.

Table 1. Summary of Boiler Area Source NESHAP Emission Limit and Work/Management Practice Requirements

Subcategory			Summary of Requirement
New large area source boilers ²	i.e., commenced construction or reconstruction of the boiler after June 4, 2010; greater than or equal to 10 MMBtu/hr	Gas (all types)	<ul style="list-style-type: none"> No requirements (not covered by rule)
		Coal (excluding limited-use boilers)	<ul style="list-style-type: none"> Numeric emission limits for Hg, CO, and particulate matter (PM)
		Biomass and Oil (excluding limited-use and seasonal boilers)	<ul style="list-style-type: none"> Numeric emission limit for PM³ Tune-up every other year or every 5 years
		Limited-use coal	<ul style="list-style-type: none"> Tune-up every 5 years No numeric emission limits
		Limited-use and seasonal biomass and oil	<ul style="list-style-type: none"> Tune-up every 5 years No numeric emission limits
New small area source boilers ²	i.e., commenced construction or reconstruction of the boiler after June 4, 2010; less than 10 MMBtu/hr	Gas (all types)	<ul style="list-style-type: none"> No requirements (not covered by the rule)
		Coal, Biomass and Oil	<ul style="list-style-type: none"> Tune-up every other year or every 5 years No numeric emission limits

² A new or reconstructed dual-fuel gas-fired boiler that meets the applicability criteria of subpart JJJJJJ after June 4, 2010 due to a fuel switch from gaseous fuel to solid fossil fuel, biomass, or liquid fuel is considered to be a new source.

³ New oil-fired boilers that combust only oil with no more than 0.50 weight % sulfur or a mixture of 0.50 weight % sulfur oil with other fuels not subject to a PM emission limit under this subpart and that do not use a post-combustion technology (except a wet scrubber) to reduce PM or SO₂ emissions are not subject to the PM emission limit.

Emission Limits for Area Source Boilers Oil and Biomass Only

Subcategory	Emission Limits	
	PM (lb/MMBtu)	
	10 – 30 MMBtu/hr	>30 MMBtu/hr
New Biomass	0.07	0.03
New Oil	0.03	0.03
Existing Biomass	-	-
Existing Oil	-	-

Particulate matter alternative for new oil-fired boilers

- New oil-fired units may combust low sulfur oil* as an alternative method of meeting the particulate matter (PM) emission standard (provided the boiler does not use a post-combustion control technology (except a wet scrubber) to reduce PM or sulfur dioxide emissions).

* ≤ 0.5 weight percent sulfur content requirements

Tune-up Frequency Requirements

- Requiring *tune-ups every 5 years*, instead of every 2 years, for:
 - *Seasonal boilers*, oil and biomass boilers which undergo a shut down for at least 7 consecutive months each 12-month period due to seasonal conditions, except for period testing (not to exceed 15 days in the 7 month shutdown)
 - *Limited-use boilers* with a federally enforceable annual average capacity factor of no more than 10 percent
 - *Oil-fired boilers with heat input capacity ≤ 5 MMBtu/hr*
 - *Boilers with oxygen trim systems*
- Initial tune-ups are not required for new boilers

Fuel Switch Requirements for dual-fuel fired boilers

- **Existing dual-fuel fired boilers** (i.e., commenced construction or reconstruction on or before June 4, 2010) that ***fuel switch from gas to coal, biomass or oil after June 4, 2010 remain existing sources***, as long as the boiler was designed to accommodate the alternate fuel
- New dual-fuel fired boilers that make such a fuel switch would continue to be considered new sources

What are the Tune-up Requirements?

- As applicable, **inspect the burner**, and clean or replace any components of the burner as necessary*
- **Inspect the flame pattern**, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available.
- **Inspect the system controlling the air-to-fuel ratio**, as applicable, and ensure that it is correctly calibrated and functioning properly*
- **Optimize total emissions of carbon monoxide**. This optimization should be consistent with the manufacturer's specifications, if available, and with any nitrogen oxide requirement.

* You may delay the inspection until the next scheduled unit shutdown, not to exceed: 36 months from previous inspection for sources requiring biennial tune-up; or 72 months from previous inspection for sources requiring 5-year tune-up.

What are the Tune-up Requirements? (cont'd)

- **Measure the concentrations** in the effluent stream of **carbon monoxide** in parts per million, by volume, and **oxygen** in volume percent, **before and after the adjustments** are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made).
- Maintain onsite and submit, if requested, **biennial or five year report** containing the following information:
 - The concentration of CO in the effluent stream in ppm, by volume, and oxygen in volume percent, measured before and after the tune-up of the boiler.
 - A description of any corrective actions taken as a part of the tune-up of the boiler.
 - The type and amount of fuel used over the 12 months prior to the biennial tune-up of the boiler, but only if the unit is physically and legally capable of burning more than one fuel.

Tune-up Information Documentation

National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers **40 CFR Part 63 Subpart JJJJJJ**

You may use this form to meet the requirements for completing and documenting a tune-up under the *National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers*. However, you may also record the information in another form or format.

SECTION I: RECORD OF GENERAL BOILER INFORMATION

Date: _____ Reporting Period: _____
Boiler Operator: _____ Boiler Emission Unit ID^a: _____
Tune-Up Conducted By: _____
Please Print

SECTION II: RECORD OF TUNE-UP PROCEDURES (§63.11225(c)(2) and (§63.11223(b)(6)(i) and (ii))

Check the applicable box when the procedure is completed. If the procedure does not apply to you, indicate 'not applicable' or 'NA' in the comments column.

Requirement	Description	Inspector Comments/ Corrective Actions Taken												
<input type="checkbox"/> Inspect the burner ^b	Clean or replace any components of the burner, as necessary													
<input type="checkbox"/> Inspect the flame pattern	Adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available.													
<input type="checkbox"/> Inspect air-to-fuel ratio control system	Ensure system is calibrated and functioning properly, if such a system is installed on the boiler													
<input type="checkbox"/> Optimize emissions of carbon monoxide (CO)	Optimize emissions consistent with the manufacturer's specifications, if available.													
<input type="checkbox"/> Measure CO and O ₂ levels in exhaust, before and after tune-up ^c	<table><tr><th>Parameter</th><th>Before</th><th>After</th></tr><tr><td>Basis (wet or dry)</td><td></td><td></td></tr><tr><td>CO (ppmv)</td><td></td><td></td></tr><tr><td>O₂ (% by volume)</td><td></td><td></td></tr></table>	Parameter	Before	After	Basis (wet or dry)			CO (ppmv)			O ₂ (% by volume)			
Parameter	Before	After												
Basis (wet or dry)														
CO (ppmv)														
O ₂ (% by volume)														

^a Use the boiler emission unit ID consistent with the ID provided in the Initial Notification Report.

^b You may delay the burner inspection until the next scheduled unit shutdown, but you must inspect each burner at least once every 36 months.

^c Measurements may be made on either a dry or wet basis, as long as it is the same basis before and after the tune-up adjustments are made. CO concentration measurements must be made in units of parts per million by volume (ppmv). Oxygen (O₂) concentration measurements must be made as percent by volume.

SECTION III: RECORD OF MANUFACTURER SPECIFICATIONS (§63.11225(c)(2))

If your boiler has manufacturer specifications for adjusting the flame patterns or optimizing total emissions of carbon monoxide, maintain a copy of these specifications in your records.

SECTION IV: RECORD OF FUEL TYPE (§63.11223(b)(6)(III))

Fuel Type ^d	Amount of fuel used or delivered for the 12 months ^e preceding the tune-up ^f							Units of measure ^g
	Delivery Date	Example: 5/20/2011						
	Or Period of Consumption	Example: 5/20/2011 – 8/31/2011						

[Add rows to the table for additional fuels, as necessary.]



If you have more than one boiler that must conduct a tune-up, please repeat Sections I, II, V, and IV for each boiler. Otherwise, proceed to Section V below. Keep Sections I through IV in your records for 5 years. **You do not submit this information unless requested by your delegated authority.**

^d Report all fuels used in each of the units subject to the standard (e.g., bituminous coal, #6 fuel oil, #2 fuel oil, natural gas, bark, lumber, etc.). See the definition of fuel type in §63.11237.

^e For the first tune-up, this fuel consumption record begins on May 20, 2011, the effective date of the rule. Thus, the first tune-up record will not reflect an entire 12 months of consumption data.

^f EPA recognizes that not all facilities have fuel metering capabilities. Records of fuel delivery- instead of fuel consumption- will also meet the rule requirements. Affected sources have discretion on the periods of fuel records maintained on-site. The records may be annual, monthly, or periodic, depending on fuel delivery frequencies.

^g e.g., Gallons, tons, standard cubic feet (scf), etc.

SECTION V: FACILITY INFORMATION AND CERTIFICATION (§63.11225(b)(1) and (2))

Facility Name:

Facility Street Address:

City

State

Zip

☒ I certify that my facility has complied with the tune up requirement for boiler(s) per §63.11123 of 40 CFR part 63, subpart JJJJJJ.

Name (please print)

Title

Phone Number

Email Address

 Signature

Date:

The required initial tune-up is due by (§63.00096):

- * Existing Sources: No later than March 21, 2014
- * New Sources: No later than May 20, 2011 or upon start-up of the boiler, whichever is later.

If the unit is not operating on the required date for a tune-up (because it is a seasonal boiler, or because it is down for maintenance, for example), the tune-up must be conducted within 30 days of startup (§63.11223(b)(7)).

Subsequent tune-ups:

Each subsequent tune-up must be conducted no more than 61 months after the previous tune-up for oil-fired boilers < 5 MMBtu/hr, and no more than 25 months after the previous tune-up for all other boilers requiring a tune-up (§63.11223(a)). You must prepare a compliance certification that indicates you complied with all the relevant standards and requirements of this subpart. You do not need to submit this report, but it can be requested by your delegated authority (§63.11225(b)).

What are the Tune-up Requirements? (cont'd)

- If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 days of startup.
- You must conduct the tune-up while burning the fuel that provided the *majority* of the heat input to the boiler in the last 12 months before the tune-up (or both fuels if the boiler routinely burns two types of fuels at the same time)

Energy Assessment Requirements

The Basics

- Required for existing oil, biomass, and coal-fired boilers with design heat input capacity of 10 MMBtu/hr or greater, except limited-use boilers
- One-time assessment
- Conducted by qualified energy assessor
- Must be completed by **March 21, 2014**
- Source operating under an energy management system compatible with ISO 50001 satisfies the energy assessment requirement

Energy Assessment Requirements

Energy assessments potentially evaluate two main systems:

- Boiler system
 - Boiler; and
 - Associated components, such as, the feedwater systems, combustion air systems, fuel systems (including burners), blowdown systems, combustion control systems, steam systems, and condensate return systems, directly connected to and serving the energy use systems;
- Energy use systems (meeting energy production threshold)
 - Process heating; compressed air systems; machine drive (motors, pumps, fans); process cooling; facility heating, ventilation, and air conditioning systems; hot heater systems; building envelope, and lighting; or
 - Other systems that use steam, hot water, process heat, or electricity, provided by the affected boiler
 - Energy use systems are only those systems using energy clearly produced by the affected boilers.

Energy Assessment Requirements

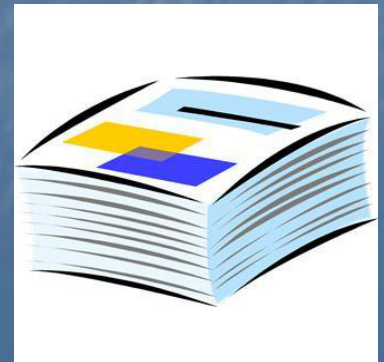
The energy assessment must include the following 7 items:

1. A visual inspection of the boiler system (e.g. cracks, corrosion, leaks, insulation);
2. An evaluation of operating characteristics of the facility, specifications of energy using systems, operating and maintenance procedures, and unusual operating constraints;
3. Inventory of major systems consuming energy (i.e. energy use systems) from affected boiler(s) and which are under the control of the boiler owner or operator;
4. A review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage;

Energy Assessment Requirements

The energy assessment must include the following 7 items, continued:

5. A list of major energy conservation measures that are within the facility's control;
6. A list of the energy savings potential of the energy conservation measures identified;
7. A comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments.



Energy Assessment Requirements

Duration of Assessment

If your facility has Boiler Annual Heat Input, as measured in Trillion Btu/yr (TBtu/yr), of...	Then the length of the energy assessment, in on-site technical labor hours ^a , need not exceed ^b ...	And should include any on-site energy use systems that account for this percent of the energy production from these affected boilers...
Less than 0.3	8 hours	At least 50%
0.3 to 1.0	24 hours	At least 33%
Greater than 1.0	24 hours for the first TBtu/yr plus 8 hours for every additional TBtu/yr, not to exceed 160 hours	At least 20%

^a The on-site technical hours are required for items 1 through 4 of the energy assessment.

^b The length may be longer at the discretion of the owner or operator of the affected source.

Energy Assessment Requirements

Frequently Asked Questions

Boiler Annual Heat Input

- Heat input capacity for each boiler calculated based on 8,760 hr/yr
- A measurement of the *facility's* total boiler capacity
 - Add together heat input capacity for each boiler subject to energy assessment requirement
- Measured in Trillion Btu/yr (TBtu/yr)

Example:

A facility has two (2) existing oil-fired boilers, each with a heat input capacity of 10 MMBtu/hr.

The facility's Boiler Annual Heat Input would equal:

$$2 \times (10,000,000 \text{ Btu/hr} \times 8,760 \text{ hr/yr}) = 175,200,000,000 \text{ Btu/yr or } \mathbf{0.1752 \text{ TBtu/yr}}$$

Energy Assessment Requirements

Frequently Asked Questions

Using our previous example:

The two boilers provide energy to five (5) distinct energy use systems, each consuming 20% of the boilers' output.

With Boiler Annual Heat Input (0.1752 TBtu/yr) $< 0.3 \text{ Tbtu/yr}$, only the boilers would need to be included in an energy assessment because none of the energy use systems meet or exceed the 50% threshold.

If, the two boilers provide energy to one (1) energy use system, consuming 100% of the boilers' output, the boilers and the energy use system would have to be evaluated in an energy assessment.

Energy Use Systems

- Limited to energy use systems:
 - Located on-site; and
 - Associated with the affected boiler
- Energy use systems may be segmented in the most logical manner as applicable to specific facility being assessed
 - e.g., heating and cooling system, compressed air systems, production area, or a specific building

Qualified Energy Assessors

Someone who has demonstrated capabilities to evaluate energy savings opportunities for steam generation and major energy using systems, including, but not limited to:

- i. Boiler combustion management.
- ii. Boiler thermal energy recovery, including
 - A. Conventional feed water economizer,
 - B. Conventional combustion air preheater, and
 - C. Condensing economizer.
- iii. Boiler blow down thermal energy recovery.
- iv. Primary energy resource selection, including
 - A. Fuel (primary energy source) switching, and
 - B. Applied steam energy versus direct-fired energy versus electricity.
- v. Insulation issues.
- vi. Steam trap and steam leak management.
- vii. Condensate recovery.
- viii. Steam end-use management.

Qualified Energy Assessors (cont'd)

Capabilities and knowledge includes, but is not limited to:

- i. Background, experience, and recognized abilities to perform the assessment activities, data analysis, and report preparation.
- ii. Familiarity with operating and maintenance practices for steam or process heating systems.
- iii. Additional potential steam system improvement opportunities including improving steam turbine operations and reducing steam demand.
- iv. Additional process heating system opportunities including effective utilization of waste heat and use of proper process heating methods.
- v. Boiler-steam turbine cogeneration systems.
- vi. Industry specific steam end-use systems.

Qualified Energy Assessors (cont'd)

- The qualified energy assessor may be a company employee or outside specialist.
- The energy assessor qualification requirement is waived in instances where past or amended energy assessments are used to meet the energy assessment requirement.
 - So long as the past or amended energy assessment was completed on or after January 1, 2008
- Region 1 List of Qualified Energy Assessors:
 - <http://www.epa.gov/boilercompliance/whereyoulive.html#region1>

Qualified Energy Assessors (cont'd)

Last updated: 06/27/2013

First Name ▼	Last Name ▼	Company ▼	Address ▼	City ▼	State ▼	ZIP ▼	Phone ▼	Cell ▼
Steven	Consedine	ABLE Company	70A Raton Drive	Milford	CT	06461	203-876-0636 x105	413-348-0351
Paul	Johnson	Fuss & O'Neill, Inc.	146 Hartford Rd	Manchester	CT	06040	203-374-3748 x 3503	
Mitch	Kennedy	Design with Nature, LLC	85 Arch Road	Avon	CT	06001	860-712-4792	860-855-8601
Paul	Banks	B2Q Associates, Inc.	146 Main Street	North Andover	MA	01845	978-208-0609	978-335-4517
Paul	Doherty	Golder Associates Inc.	61 Peaslee Circle	Middleton	MA	01949	617-240-5242	617-240-5242
Jack	Griffin	SourceOne, Inc.	53 State Street	Boston	MA	02109	617-399-6151	617-455-2811
William	Judd	Industrial Compliance Group	123 Franklin Street	Framingham	MA	01702	508-875-1197	508-864-8807
Beka	Kosanovic	Industrial Assessment Center, UMass Amherst	160 Governors Drive	Amherst	MA	01003	413-545-0684	
Ying	Ng	Golder Associates Inc.	1900 West Park Drive, Suite 220	Westborough	MA	01581	508-329-7970 x43203	617-669-9888
Michael	Nicoloro	Sanborn Head & Associates, Inc.	1 Technology Park Drive	Westford	MA	01886	978-577-1035	
Brian	Wodka	RMF Engineering	100 Trade Center Suite G-700	Woburn	MA	01801	410-576-0505	443-341-5361
Dan	Kelley	Woodard & Curran	41 Hutchins Drive	Portland	ME	04102	207-774-2112	207-956-1131
Michael	Walker	The EI Group, Inc	2101 Gateway Centre Blvd, Suite 200	Morrisville	NC	27560	919-459-5245	919-280-9889
Claire	Golden Lund	Sanborn Head & Associates, Inc.	20 Foundry Street	Concord	NH	03301	603-415-6144	603-340-0495
Thomas	Seguljic	HRP Associates, Inc.	1 Fairchild Square, Suite 110	Clifton Park	NY	12065	888-823-6427	518-877-7101
Bob	Tidona	Honeywell Building Solutions	1201 Old Lancaster Road	Berwyn	PA	19312		610-731-4693
Jean-Paul	Vandeputte	RISE Engineering	1341 Elmwood Ave	Cranston	RI	02910	401-784-3700 x6129	401-439-4854
Mark	Bannon	Bannon Engineering	Post Office Box 171	Randolph	VT	05060	802-728-6500	802-279-6500
Ray	Keller	RMK Consultants, LLC	161 Thistle Hill Drive	Hinesburg	VT	05461	802-338-1587	
Heather	Little	Sanborn Head & Associates, Inc.	2 South Main Street, Suite 2	Randolph	VT	05060	802-728-8000 x103	
Sam	Cooke	SCS Engineers	2830 Dairy Drive	Madison	WI	53718	608-216-7382	608-444-5339

Compliance Dates

- Existing Sources (commenced construction on or before June 4, 2010)
 - Complete initial tune-up, compliance with emission limits and energy assessment by **March 21, 2014**
- New Sources (commenced construction after June 4, 2010)
 - Must comply by May 20, 2011, or **upon startup**, whichever is later



Notifications and Reports



- ***Initial Notifications*** due by January 20, 2014 or within 120 days after the source becomes subject to standard
- ***Notification of Intent to Conduct Performance Test*** due at least 60 days before the performance stack test
- ***Compliance Certification Reports:***
 - For boilers subject only to a requirement to conduct a tune-up and not subject to emission limits or operating limits, you are only required to prepare a ***Biennial or Five Year Compliance Report***
 - Compliance Report must be submitted to the delegated authority only upon request

Initial Notification of Applicability Report

National Emission Standards for Hazardous Air Pollutants: Industrial, Commercial, and Institutional Boilers Area Sources 40 CFR Part 63 Subpart JJJJJJ

This form contains the information that must be submitted to fulfill the initial Notification requirement of 40 CFR part 63, subpart JJJJJJ. You may use this form submit the information or you may submit the information in another form or format.

When must I submit an Initial Notification (§63.9(b)(2))?

Existing sources: No later than January 20, 2014.

New sources: No later than September 17, 2011, or within 120 days after startup of a new source, whichever is later.

SECTION I : GENERAL INFORMATION

Operating Permit Number (IF AVAILABLE)^a

Facility ID Number (IF AVAILABLE)^b

Responsible Official's Name

Title

Street Address

City

State

Zip Code

Facility Name

Facility Street Address (if different than Responsible Official's Street Address listed above)

Street Address

City

State

Zip Code

Facility Local Contact Name

Title

Contact email address:

Anticipated Compliance Date(s) (mm/dd/yy) (§63.9(b)(2)(iii)):

^a (e.g., Title V permit number)

^b (e.g., Air Facility System (AFS) facility ID)

SECTION II: SOURCE DESCRIPTION

1. Please complete the table below for each affected source (boiler and/or process heaters) per §63.9(b)(2)(iv).

Emission Unit ID ^c	Emission Unit Name (design and manufacturer name)	Size: Rated Heat Input Capacity (MMBtu/hr) ^d	Fuels Used ^e

[Add rows to the table for additional boilers, as necessary.]

^c If the source has an operating permit, use the IDs that are consistent with those reported in the permit.

^d MMBtu/hr refers to million British thermal units per hour. Boilers often have a nameplate listing the rated heat input capacity on the unit. This rated capacity may have also been reported to the entity insuring the boiler or the state labor and safety inspector.

^e Report all fuels used in each of the units subject to the standard (e.g., bituminous coal, #6 fuel oil, #2 fuel oil, natural gas, bark, lumber, etc.).


2. Optional: Additional notes

3. My facility is a (please choose one): ☐ Major source ☐ Area source

If your facility is a major source of hazardous air pollutants (HAP), please refer to the National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR Part 63 Subpart DDDDD at <http://www.epa.gov/ttn/atw/boiler/boilerpg.html>.

SECTION III: CERTIFICATION

I hereby certify that the information presented herein is correct to the best of my knowledge.

	
Signature	Date
	
Name/title	Telephone Number

Mail to both EPA and NHDES:

USEPA Region I
Attn: Air Clerk
5 Post Office Square, Suite 100
Mail code: OES04-2
Boston, MA 02109-3912

NH Dept. of Environmental Services
Air Resources Division
Attn: Permitting Program
29 Hazen Dr, PO Box 95
Concord, NH 03302-0095

Notifications and Reports



- ***Notification of Compliance Status (NOCS)*** due no later than 120 days after the applicable compliance date, unless you must conduct a performance stack test. If you must conduct a performance stack test, NOCS due within 60 days of completing the performance stack test.
 - e.g., NOCS following the energy assessment and tune-up is due no later than ***July 19, 2014*** for existing sources
 - ***Rule requires electronic reporting of the NOCS*** reports using the Compliance and Emissions Data Reporting Interface (CEDRI) through EPA's Central Data Exchange (www.epa.gov/cdx), once EPA completes the reporting template. EPA is currently developing a reporting template for the NOCS, expected in the fall of 2013. EPA is accepting paper NOCS only until the electronic reporting template is ready.

Notification of Compliance Status for Boilers Subject to Tune-ups

National Emission Standards for Hazardous Air Pollutants for Area Sources:
Industrial, Commercial, and Institutional Boilers
40 CFR Part 63 Subpart JJJJJJ

You may use this form to meet the one-time Notification of Compliance Status requirement for a boiler(s) that is subject to a tune-up work practice under the *National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers*. However, you may report the information in another form or format.

SECTION I: INSTRUCTIONS

When is this report due (§63.11225(a)(4))?

Existing Sources: The Notification of Compliance Status must be submitted no later than **July 19, 2014**.

New Sources: The Notification of Compliance Status must be submitted by no later than September 17, 2011 or 120 days after startup, whichever is later.

SECTION II: CERTIFICATION AND NOTIFICATION OF COMPLIANCE STATUS UNDER THE BOILERS AREA SOURCE NESHAP (§63.11225(a)(4))

Check the applicable boxes

1. ☐ This facility complies with the requirements of §63.11214 to conduct an initial tune-up of each boiler.
2. ☐ No secondary materials that are solid waste were combusted in any affected unit.^a
3. Select one of the following options:
 - a. ☐ This facility has had an energy assessment performed according to §63.11214(c).
 - b. ☐ I will submit a separate compliance status notification for the energy assessment by July 19, 2014.
 - c. ☐ The energy assessment does not apply to my facility.

^a If your boiler has qualified for a statutory exemption as provided in section 129(g)(1) of the Clean Air Act you do not need to check this box.

SECTION III: FACILITY INFORMATION §63.9(h)(2))

☐ I certify that the information presented herein is true, accurate, and complete to the best of my knowledge. (See 63.9(h)(2)(i)).

Facility Name:

Facility Street Address:

City:

State:

Zip:

Name (please print)



DATE:

Signature

Submit this notification form to:

EPA Region I

5 Post Office Square, Suite 100, Mail code: OES04-2
Boston MA 02109-3912
Attention: Air Clerk

New Hampshire Department of Environmental Services

Air Resources Division
29 Hazen Drive, PO Box 95
Concord, NH 03302-0095
Attention: Air Permitting

Notifications and Reports



- ***Fuel switch Notification*** – If you have switched fuels, or made a physical change to the boiler, or have taken a permit limit which results in you being in a different subcategory, or becoming subject to Subpart 6J, or no longer being subject to Subpart 6J due to a switch to 100% natural gas, ***you must provide notice within 30 days*** of the fuel switch, the physical change or the permit issuance.

For More Information

For information on Area Source Boiler NESHAP Rule:

<http://www.epa.gov/boilercompliance/>

For Information on Major and Area Source Boiler NESHAP Rules:

<http://www.epa.gov/ttn/atw/boiler/boilerpg.html>

For Information for NH Sources:

<http://des.nh.gov/organization/divisions/air/boiler-rule/index.htm>

For U.S. DOE's Northeast CEAC

<http://www.northeastcleanenergy.org/projectstartup/overview.php>

Area Source Boiler Contact Information

For questions from sources in New England:

Susan Lancey, U.S. EPA New England, (617) 918-1656

George Frantz, U.S. EPA New England, (617) 918-1883

For questions about NESHAP energy assessments in New England:

Patrick Bird, U.S. EPA New England, (617) 918-1287

To find a contact in other regions, visit:

<http://www.epa.gov/boilercompliance/whereyoulive.html>



Emergency Generator Regulations



EPA's Stationary Engine Regulations

- NESHAP for Stationary Reciprocating Internal Combustion Engines (RICE)
 - 40 CFR 63, Subpart ZZZZ (“Quad Z”)
- New Source Performance Standards (NSPS) for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE)
 - 40 CFR 60, Subpart IIII (“Quad I”)
- NSPS for Stationary Spark Ignition (SI) ICE
 - 40 CFR 60, Subpart JJJJ (“Quad J”)

Applicability

RICE
NESHAP

Quad Z

- Applies to stationary CI and SI engines, both existing and new

CI ICE
NSPS

Quad I

- Applies to stationary CI engines:
 - Ordered after July 11, 2005 and manufactured after April 1, 2006
 - Modified or reconstructed after July 11, 2005

SI ICE
NSPS

Quad J

- Applies to stationary SI engines:
 - Ordered after June 12, 2006 and manufactured on/after
 - July 1, 2007 if ≥ 500 HP (except lean burn $500 \leq \text{HP} < 1,350$)
 - January 1, 2008 if lean burn $500 \leq \text{HP} < 1,350$
 - July 1, 2008 if < 500 HP
 - January 1, 2009 if emergency > 25 HP
 - Modified or reconstructed after June 12, 2006

**Stationary RICE NESHAP
(Quad Z)
Background and Recent Amendments**

Important Applicability Change for RICE NESHAP (Quad Z)

- Regulates HAP emissions from stationary RICE at both major and area sources of HAP
 - All size and age of engines are covered
 - New or reconstructed stationary RICE located at an area source must meet the requirements of **Quad I or Quad J**. No further requirements apply under Quad Z.
- ***ONLY ENGINES NOT SUBJECT:*** Existing emergency engines located at residential, institutional, or commercial area sources used or obligated to be available ≤ 15 hr/yr for emergency demand response, and not used for local reliability

Emergency Engine Operational Limitations (Quad Z)

- Emergency engine operation limited to:
 - Unlimited use for emergencies (e.g., power outage, fire, flood)
 - 100 hr/yr for maintenance/testing and emergency demand response
 - 50 hr/yr of the 100 hr/yr allocation can be used for:
 - Non-emergency situations if no financial arrangement
 - Local reliability as part of a financial arrangement with another entity if specific criteria met (existing RICE at area sources of HAP only)
 - Peak shaving until May 3, 2014 (existing RICE at area sources of HAP only)

Emergency Engine Operational Limitations (Quad Z) (cont'd)

- Operation for emergency demand response up to 100 hr/yr allowed if:
 - Energy Emergency Alert Level 2 has been declared by Reliability Coordinator, or
 - Voltage or frequency deviates by 5% or more below standard
- Operation for local reliability up to 50 hr/yr allowed if:
 - Engine is dispatched by local transmission/distribution system operator
 - Dispatch intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads
 - Dispatch follows reliability, emergency operation, or similar protocols that follow specific NERC, regional, state, public utility commission, or local standards or guidelines
 - Power provided only to facility or to support local distribution system
 - Owner/operator identifies and records dispatch and standard that is being followed

Operating and Maintenance Requirements for Emergency Engines (Quad Z)

- Meet RICE rule emergency engine operational requirements for the type and amount of hours operated (Slides 48 & 49);
- Operate and maintain engine per manufacturer's instruction or owner-developed maintenance plan;
- Minimize the engine's time spent at idle and minimize the engine's startup time, not to exceed 30 minutes;
- Install a non-resettable hour meter;
- Change oil and filter every 500 hrs or annually, whichever comes first;
- May use an oil analysis program instead;

Operating and Maintenance Requirements for Emergency Engines (Quad Z) (cont'd)

- For CI engines, inspect air cleaner every 1,000 hrs or annually, whichever comes first and replace filter as necessary;
- For SI engines, inspect spark plugs every 1,000 hrs of operation or annually, whichever comes first and replace as necessary;
- Inspect hoses and belts every 500 hrs or annually, whichever comes first and replace as necessary;
- For existing emergency engines greater than 100 brake hp, displacement of <30 liters per cylinder, uses diesel fuel and is used for emergency demand response or local system reliability purposes:
 - Beginning May 3, 2013, keep records of the notification of the emergency situation, date, start and end time of engine operation and
 - Beginning January 1, 2015, use ultra low sulfur diesel (ULDS)

Reporting Requirements for Emergency Engines (Quad Z)

- Requirements apply to emergency RICE >100 hp that are:
 - Operated or contractually obligated to be available >15 hr/yr (up to 100 hr/yr) for emergency demand response or voltage/frequency deviation, or
 - Operation for local reliability (up to 50 hr/yr)
- Beginning with 2015 operation, report electronically by March 31 of the following year:
 - Facility name/address
 - Engine rating, model year, lat/long
 - Date, start time, end time for operation for purposes above
 - Number of hours engine is contractually obligated for emergency demand response or voltage/frequency deviation
 - Entity that dispatched engine for local reliability and situation that necessitated dispatch
 - Deviations from fuel requirement
- Submit report electronically through the Compliance and Emissions Data Reporting Interface
 - Accessed through EPA's Central Data Exchange at <http://www.epa.gov/cdx>

**Stationary ICE NSPS
(Quad I and Quad J)
Recent Amendments**

Emergency Engine Operational Limitations

- Emergency engine operation limited to:
 - Unlimited use for emergencies (e.g., power outage, fire, flood)
 - 100 hr/yr for maintenance/testing and emergency demand response
 - 50 hr/yr of the 100 hr/yr allocation can be used for:
 - Non-emergency situations (if no financial arrangement)
 - Local reliability
- Operation for emergency demand response limited to:
 - Energy Emergency Alert Level 2 has been declared, or
 - Voltage or frequency deviates by 5% or more below standard
- Operation for local reliability limited to mitigating local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads; engine must be dispatched by local transmission/distribution system operator
- As with NESHAP, electronic reporting beginning with 2015 operation

Stationary CI ICE NSPS Overview of Current Rule

Who is Subject to the CI NSPS?

- Owners/operators of stationary CI engines
 - Constructed (ordered) after 7/11/2005 and manufactured after 4/1/2006
 - Constructed after 7/1/2006 for fire pump engines
 - Modified/reconstructed after 7/11/2005



Compliance

- Manufacturers must certify 2007 model year and later engines with a displacement <30 liters/cylinder
 - Certification = EPA Certificate of Conformity
- Owner/operators of emergency generators comply by:
 - Purchasing certified engine
 - Install, configure, operate and maintain engine per manufacturer's instructions or manufacturer-approved procedures
 - Meet NSPS rule emergency engine operational requirements for the type and amount of hours operated (Slide 57);
 - Install a non-resettable hour meter prior to startup
 - Owner/operator operates unit with **ultra low sulfur fuel** after October 1, 2010 (<15 ppm sulfur content)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2012 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT OF 1990

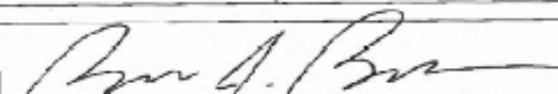
OFFICE OF TRANSPORTATION
AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: Generac Power Systems, Inc.
(U.S. Manufacturer or Importer)

Certificate Number: CGNXB06.82NN-012

Effective Date:
10/26/2011

Expiration Date:
12/31/2012


Byron J. Bunker, Acting Division Director
Compliance Division

Issue Date:
10/26/2011

Revision Date:
N/A

Manufacturer: Generac Power Systems, Inc.

Engine Family: CGNXB06.82NN

Certificate Number: CGNXB06.82NN-012

Certification Type: Stationary (Part 60)

Fuel: Natural Gas (CNG/LNG)

Emission Standards: NMHC + NOx (g/kW-hr): 13.4

CO (g/kW-hr): 519

HC + NOx (g/kW-hr): 13.4

Emergency Use Only: Y

Pursuant to Section 213 of the Clean Air Act (42 U.S.C. section 7547) and 40 CFR Part 60, 1065, 1068, and 60 (stationary only and combined stationary and mobile) and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following nonroad engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new nonroad spark-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60. This certificate of conformity does not cover nonroad engines imported prior to the effective date of the certificate.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068.20 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

This certificate does not cover large nonroad engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

Notification and Recordkeeping

- Emergency Generators not required to submit an initial notification.
- Maintain **documentation** from the manufacturer certifying that the engine complies with the applicable emission standards of Quad I
- Record the **hours of operation** of the engine and the **reason** the engine was in operation during that time.
- Keep records of the **sulfur content** of the fuel burned in the device.
- Beginning March 31, 2016, submit **report** electronically through the Compliance and Emissions Data Reporting Interface (Slide 55)
 - Accessed through EPA's Central Data Exchange at <http://www.epa.gov/cdx>

Stationary SI ICE NSPS Overview of Current Rule

Who is Subject to the SI NSPS?

- Owners/operators of stationary SI engines:
 - Constructed after 6/12/2006 and
 - ≥ 500 HP manufactured on/after 7/1/2007 (except lean burn $500 \leq \text{HP} < 1,350$)
 - Lean burn $500 \leq \text{HP} < 1,350$ manufactured on/after 1/1/2008
 - < 500 HP manufactured on/after 7/1/2008
 - Emergency > 25 HP manufactured on/after **1/1/2009**
 - Modified/reconstructed after 6/12/2006



Compliance for Manufacturers

- Manufacturers must certify engines ≤ 25 HP, gasoline engines, and rich burn LPG engines
- Manufacturers can elect to certify other engines

Compliance Requirements for Owners/Operators

- Certified engines:

- Install, configure, operate and maintain engine per manufacturer's instructions
- Meet NSPS rule emergency engine operational requirements for the type and amount of hours operated (Slide 57);
- If you do not operate/maintain according to manufacturer's instructions
 - Keep maintenance plan and maintenance records
 - Operate consistent with good air pollution control practices
 - $100 \leq \text{hp} \leq 500$ – initial performance test
 - >500 hp – initial performance test and subsequent every 8,760 hours or 3 years, whichever is first

Compliance Requirements for Owners/Operators

- Non-certified engines:

- Maintenance plan
- Meet NSPS rule emergency engine operational requirements for the type and amount of hours operated (Slide 57);
- Performance testing
 - 25<hp≤500 – initial test
 - >500 hp - initial test and subsequent every 8,760 hours or 3 years, whichever is first
 - Conduct within 10% of peak (or highest achievable) load

Monitoring/Recordkeeping/Reporting

Requirements include:

- Non-resettable hour meter for emergency engines
- Documentation of certification
- Records of engine maintenance
- Results of performance testing (as applicable) with 60 days of test
- Record the **hours of operation** of the engine and the **reason** the engine was in operation during that time.
- Beginning March 31, 2016, submit report electronically through the Compliance and Emissions Data Reporting Interface as outlined on slide 55
 - Accessed through EPA's Central Data Exchange at <http://www.epa.gov/cdx>

For More Information

For information on RICE NESHAP Rule (Region 1):

<http://www.epa.gov/region1/rice/>

For Information on RICE NESHAP Rules (Technical Documents and EPA HQ):

<http://www.epa.gov/ttn/atw/rice/ricepg.html>

For Information for NH Sources:

<http://des.nh.gov/organization/divisions/air/pehb/apps/stationary-engines.htm>

For U.S. DOE's Northeast CEAC

<http://www.northeastcleanenergy.org/projectstartup/overview.php>

Engine Rules Contact Information

Melanie King
Energy Strategies Group
Sector Policies and Programs Division
Office of Air Quality Planning and Standards
Office of Air and Radiation

(919) 541-2469

king.melanie@epa.gov



Key Points for Both Rules

Boilers:

- Initial Notification due 1/20/14
- Boiler Tune-up (3/21/14), Document, File
- Energy Assessment (3/21/14), Report, File
- NOCS due 7/19/14

Emergency Generators:

- For **new** engines: buy certified engines, follow manufacturer's instructions, keep records, burn ULSD
- For **older** engines: operational/maintenance requirements, minimize idling and startup
- For **all** engines: Make sure you operate within the emergency engine definition!
- For **most** engines: Reporting requirement begins 3/31/16 for 2015 operations

Questions?

Cathy Beahm

N.H. Department of Environmental Services

Air Resources Division

Permitting and Environmental Health

(603) 271-2822

catherine.beahm@des.nh.gov

